

American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 98, No. 4

CHICAGO, JULY 27, 1929

\$2.00 Per Year

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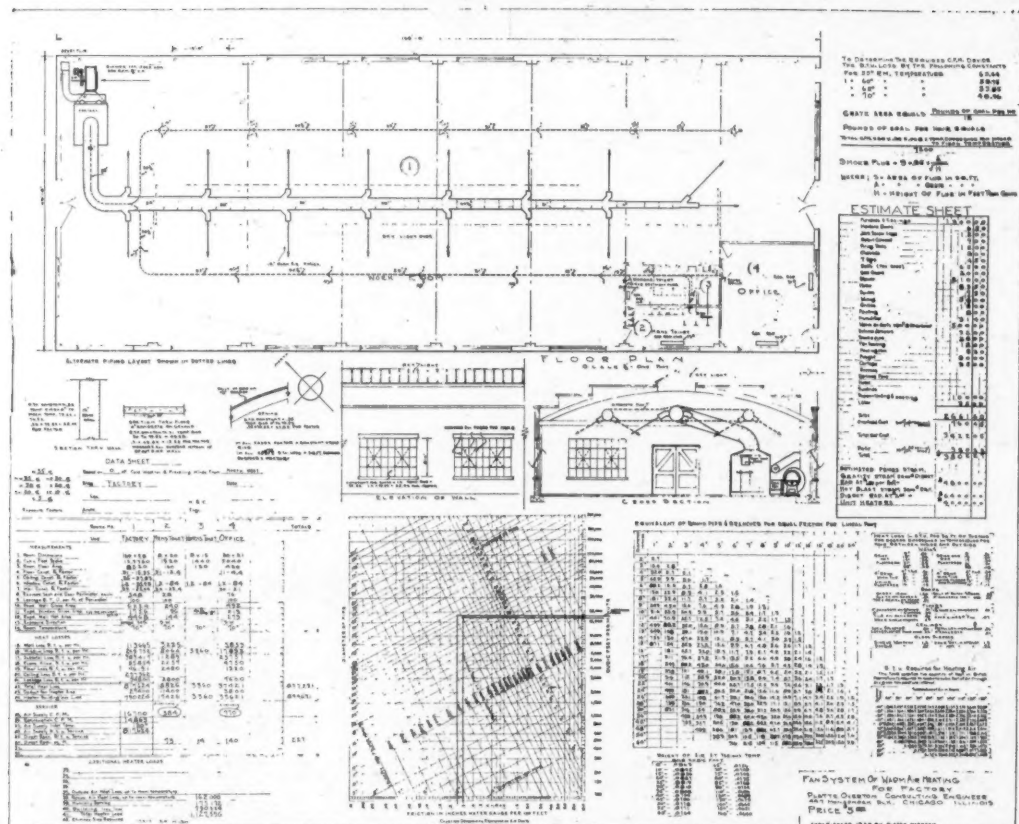
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The plan illustrated above (greatly reduced in size) is that of a Fan Blast Warm Air Heating installation in a factory. All the information necessary for you to figure a similar installation for a larger or smaller factory is given right on the full size plan.

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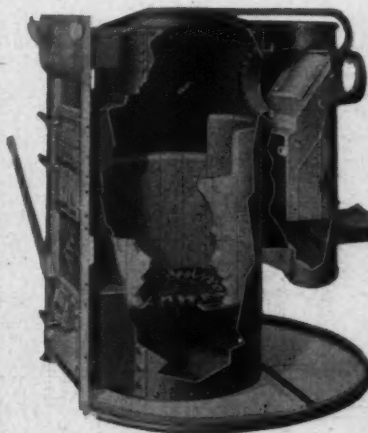
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POINT NO. XIV

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FOR a clean installation it is necessary that the air chamber between the furnace proper and the casing is easily cleaned and has no dirt accumulation. If at the bottom of this chamber there is a litter of brackets, braces, bolts and shelves, it is difficult to clean. In the Midland TRUESTEEL the chamber is clean and can be kept clean always. The TRUESTEEL furnace is made with neat, efficient, strong, capable radiator brackets, placed high up above the bottom of the chamber, hardly noticeable and certainly not detrimental. A clean chamber, so that air flowing through the cold air pipes and up through the furnace will not be passing over a surface that will contaminate it. That's the Midland TRUESTEEL way to Cleaner Heat. There's another reason for correct radiator brackets. Midland TRUESTEEL radiator brackets are designed and installed so that expansion and contraction of the heater and the radiator will not throw extra weight on the main heating drum. This is another reason why the TRUESTEEL is GUARANTEED FOR TEN YEARS.



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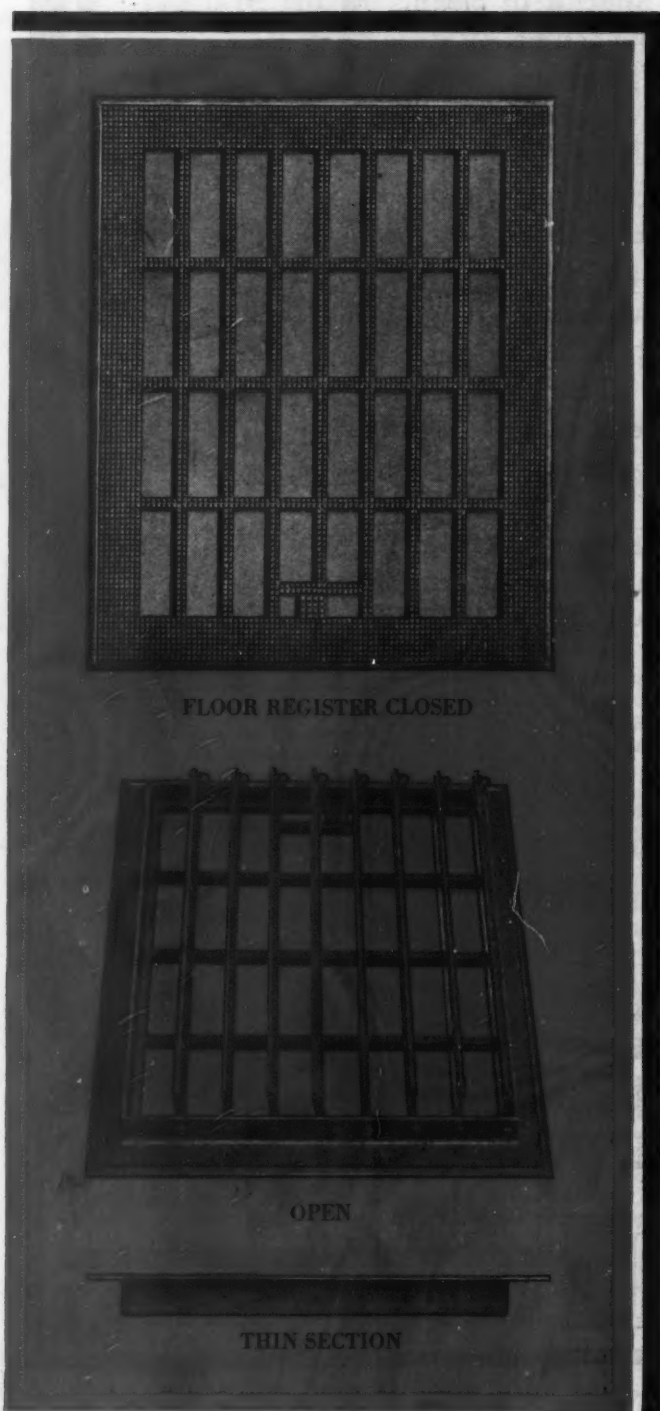
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EXAMINE LAMNECK registers and you'll say just what a thousand others have said..."the finest registers I have ever seen." It's not a matter of appearance alone, either. For instance...

LAMNECK floor registers are CLEANER, because the fans close up tight against the grill, like this



so that a vacuum sweeper keeps them clean. Compare this feature with the construction of the conventional type of floor register which forms a deep dust trap because its fans close way below the face, like this



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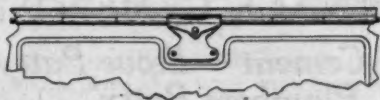
Compare this diagram with that of the conventional type of register, which is like this



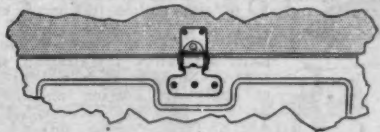
LAMNECK baseboard and wafer registers are every bit as good looking and efficient as the floor registers. They fit perfectly and are easy to install because they are *straight*...they have no warp or spring.



The shutters of LAMNECK baseboard and wafer registers work easily and stay in place whether left open, closed, or half open...because they are hinged clear across the top, like this

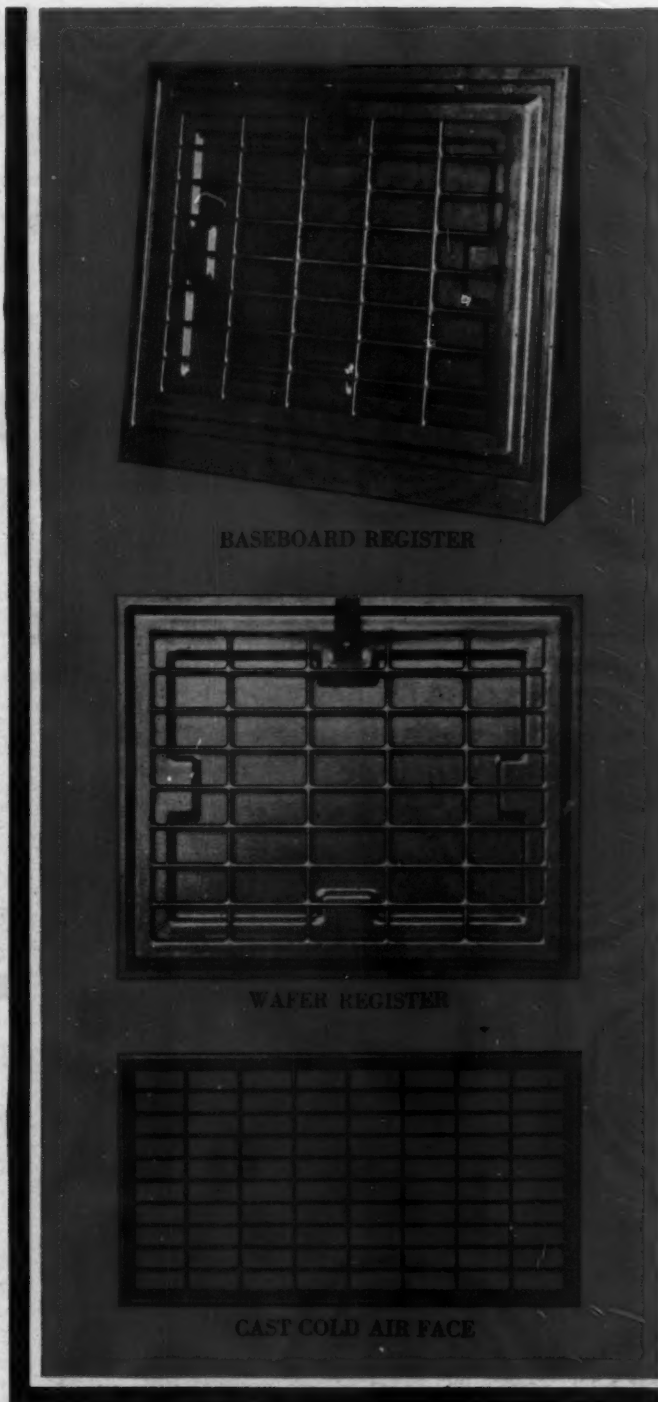


The long LAMNECK hinge gives a greater frictional surface and makes it unlikely that the shutter will ever need to have its tension adjusted. Compare the LAMNECK hinge with those used on other registers and you will understand why the shutters in so many registers become so loose with a little wear that they will not stay in place. Many registers have only an inch or so of bearing in the shutter hinge...like this



Although only the two-piece registers are shown at the right, LAMNECK baseboard and wafer registers are made in both two-piece and one-piece types.

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which makes it

SMOKELESS



SELL warm air heating to your prospective customers—don't sell a furnace—it's heating comfort your prospects are interested in. Show them how you can lay out and engineer an installation that is correct in every detail—a heating system that will give perfect heating results.

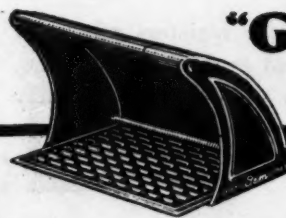
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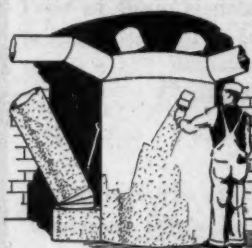
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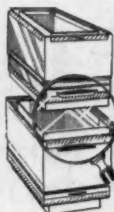
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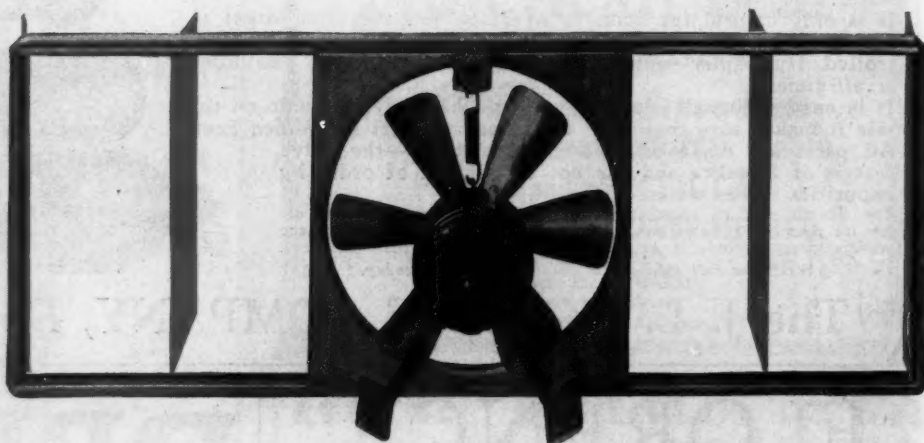
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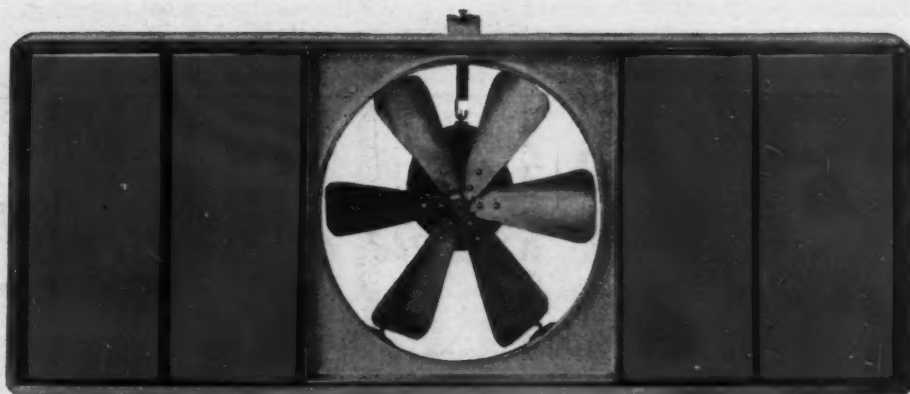
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Entered as second class matter, March 26, 1928, at the Post Office at Chicago, Ill., under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

Founded 1880

American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription Price:

United States\$2.00
Canada\$3.00
Foreign\$4.00

Published EVERY SATURDAY—to Promote Better Warm Air Heating and Sheet Metal Work

PORTER - SPOFFORD - LANGTRY CORPORATION

139 North Clark Street, Chicago—Telephone Central 7670

Fred D. Porter, President John C. Langtry, Vice-President Howard H. Bede, Secretary
Editor: G. J. Duerr Business Manager: Etta Cohn

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New York Office: 1403 Pershing Square Bldg., 100 E. 42nd St. Tel. Ashland 5342
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Vol. 98, No. 4

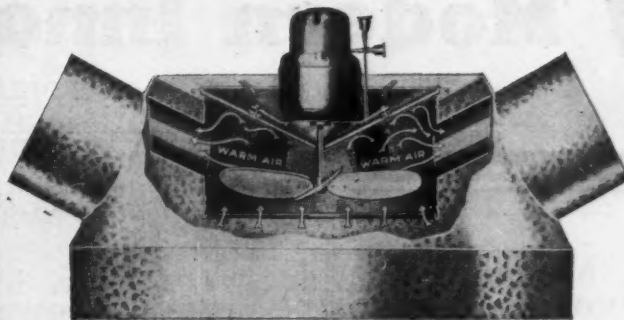
CHICAGO, JULY 27, 1929

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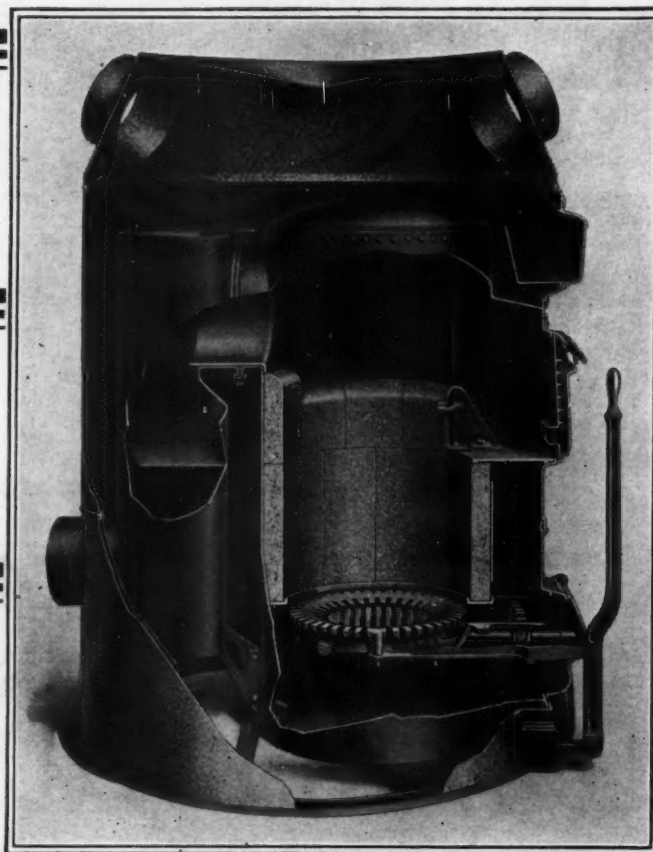
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American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 98

CHICAGO, JULY 27, 1929

No. 4

The FURNACE Installer \

What He Should Be

and

What He Should Do

Some Reflections on How the Furnace Installer Could Make More Progress Than He Has If He Would But Try

By C. S. Stout, Marshall Furnace Co.

IT is the writer's opinion that the importance of the Installer to the warm air heating industry is never considered seriously enough and that the average installer himself does not realize how important he is to the success of the system he installs, nor how far reaching his influence is for good or bad impressions.

Installer Is Too Much Workman, Too Little Business Man

He is ordinarily considered and even considers himself simply a workman putting castings and pipes together for so much money, but he is really more than that, for he is a missionary furnishing comfort, health and happiness to people; a salesman selling his own reputation for good honest intelligent labor and the reputation of the firm he represents, for being honest, reliable, intelligent furnace dealers whose word and work can be depended upon.

The best furnace ever manufactured will be a failure if installed incorrectly, and the cheapest tin

can ever put together will work good for a limited time if installed with intelligence.

Why There Is a Variance in Work

Give two furnace installers a furnace each, some pipe, registers and cold air faces, duplicate material, and two houses from the same floor plan to put them in and one may put in an ideal, perfectly-working heating system and the other a cold storage plant.

Why?

Simply because one man is interested in what is going to happen after he leaves the job and the other is simply trying to secure so many dollars for so many hours' work. One uses brains for his tools, the other a hammer, snips and trowel only.

After a long study and years of close contact with furnace installers, the writer has come to the conclusion that we do not dignify the calling of furnace installer enough; we do not realize the importance of our work; we are not jealous enough of our reputation, nor realize what an

important cog we are in the scheme of modern life. We don't think of ourselves as benefactors of mankind, because we are doing something to make life more comfortable, more healthy and happier and don't take pride enough in that fact or in our work.

There are certain principles, habits, beliefs and traits that a successful furnace installer should have. If after self analysis he finds that he hasn't them, he should immediately start to develop them so as to make the most of himself and his opportunity.

What Furnace Installer's Mental Equipment Should Be

The following is a description of what the writer believes the successful furnace installer should be, believe and do.

1. You should believe implicitly in the firm you represent. If you do not, quit and go where you can have faith and confidence in your employer.

2. You should believe in the goods your company uses.

3. You should like people, because as much of your success depends upon how you handle people as upon the way you install furnaces and the way you handle your tools.

4. You should be cheerful and optimistic. Nothing binds people to you as much, or overcomes friction and dissension so quickly as to be grouchy and ill natured. You know you can catch more flies with molasses than you can with vinegar.

5. You should be courteous, for nothing helps you along the rugged path of life and furnace installation as much as courtesy. It irons out trouble. It attracts women and children to you, and wins the respect of men. It makes the customer your friend; it raises his opinion of your company in his mind, because he naturally thinks that a firm that employs courteous workmen is a good firm to employ.

Everyone seems to expect a furnace installer to be a roughneck and he is agreeably surprised when he finds by your courteous manner that he is mistaken. Courtesy costs nothing and pays big.

6. You should be industrious, for industry is the father of success. And if you kill time on the job even though he is paying for it on a set contract price basis, he may feel that he paid a long price for the job or else your employer could not afford to let you lose so much time.

7. You should be diplomatic, because you will be called upon to deal with many kinds and types of people, agreeable and the opposite. And the disagreeable person you must smooth over and pacify and at the same time look out for the interests of the company you represent. A diplomat is the man who can so handle the dissatisfied customer that the latter feels like apologizing for his

complaints.

8. You should be independent, for if the customer demands of you something that is contrary to good heating practice, or something that is in addition to what he contracted for and is not entitled to, you must stand your ground in the interest of your company. Firmness properly mixed with courtesy, friendliness and diplomacy will protect your company's interests and increase the customer's admiration for you.

9. You should be resourceful,

chased or not.

11. You should have initiative. You should be able to go ahead on your own steam and not depend upon an excessive amount of coaching or instructions from your boss.

12. You should do nice, clean-cut, smooth work. Not only for its effect on customers and future prospects but also for the psychological effect upon yourself. A man can't do neat, clean work and have sloppy thoughts.

13. You should never by word, deed or action knock or belittle the salesman who sold the job, another installer of your company, or the goods they sell. "Big I" stuff never put any man one rung up the ladder of success, but it has thrown many from the top of the ladder to the ground. This same thing applies to your competitor. Speak of him with fairness and consideration, or not at all. Knocking him will bring you no benefit and usually much grief.

14. You should develop your personality, for personality is the thing that elevates you above the crowd. You alone are the one to do it, and you develop it simply by pushing your good points forward and depressing or pushing into the background all your bad ones. After you have done this for a time it becomes a

habit and second nature, and you will find your good points greatly outnumber your bad.

15. You should stick. Don't move around unless by so doing you are absolutely positive that you are going to materially better your situation. When you stick you are accumulating interest, just as money accumulates interest, in the shape of knowledge and experience. Each time you move you lose all the value you have built up with the firm that you were last with and have to start

MR. STOUT views the warm air furnace installer as a missionary, furnishing people with the means for health and comfort. He feels that too few furnace installers grasp the true significance of their position and importance in relation to other service rendering entities in their several communities.

The consequence is that sales resistance in the warm air heating installation field is far too great. Proper respect for the industry and for the individual installer's ability to engineer a heating plant in properly has not been built up in the minds of the public.

We may say, "What is there in appearance?" There is just this, that folks rate you largely on your appearance and the appearance of your place of business and not on the knowledge or experience you possess. For that reason if for no other a certain amount of effort must be spent on appearance or dress.

for you are going to be up against problems whose solution will call for good judgment. You must be able to see your way out. You must never be stumped.

10. You should know your goods from the selling angle, as you can make many sales by explaining your furnace to people who drop into the basement, to other workmen on the job, and you can resell to the customer if he has any doubt in his mind as to whether he purchased the thing he ought to have pur-

at the bottom of the ladder again and show your worth by years of effort.

16. You should work in harmony with the salesman who is selling the jobs you install and with the other members of your organization. Remember that you are all working for the same end, and something that helps one helps all.

17. You should cultivate the good will of women and children, for they control the majority of the buying power of the nation, particularly in household appliances.

18. You should be a thinker. What is above your neckline is much more valuable to your company than what is below it.

A good furnace installer should do nice, careful, smooth work, but all the time he should be using his head as well. He should constantly be thinking of what is going to take place in each pipe that he puts up when the heating system is put into use. How the air is going to flow through it. What obstructions it is going to meet. How much friction it will have to contend with. How much chilling it will be subjected to. You should think how to make the path which the air is going to follow as smooth and as straight as possible.

Any place that you can make the air slide around a curve instead of bumping up against the flat surface you want to do it, for it is the little things of this character that count big in the operation of the heating system, and many a well designed, well installed job is a failure because of some simple little thing that could have been taken care of at the time the job was installed if the installer had only thought more about what was going to happen and used his imagination more instead of just considering himself a tinsmith putting pieces of pipe together.

There is no man in any heating organization who has more business building opportunity, no man who has more chance to make a friend of a customer than the installer. You are there long enough to find out his likes and dislikes, to do

things to appeal to him, and things that will add to his comfort and convenience. You, more than any other man in your organization, have the opportunity to apply the mustard plaster of good fellowship and draw out of the individual a satisfied customer.

The business of heating is a wonderful business when you stop to consider it. We are furnishing to thousands of people comfort and happiness and well being in the long, dreary days of winter. Nothing on earth makes a person so grouchy, ill-natured or ill-humored as to be cold except to be hungry. Bodily warmth and protection from the elements is the second law of nature, and we are furnishing this protection. We are doing something to make life more comfortable, more happy and are promoting the continuance and well being of one of the greatest institutions in human life—the family hearthstone.

Denver Sheet Metalers to Picnic at Deer Park August 3, 1929

On August 3 the Denver, Colorado, Sheet Metal Dealers' Association will hold its annual picnic at Deer Creek Park, according to J. C. Van Male of Goldberg Brothers.

It is expected that over 150 sheet metal men and their families will be present at the picnic, and the committees in charge are working hard to make it a big success.

The park affords ample opportunity for sports of all kinds.

The committee in charge admonishes everyone to bring his or her own lunch, although there will be coffee, ice cream and watermelon furnished by the committee.

One Method of Making Envelopes Advertise Your Business

The back flaps of his business envelopes are used by a New Jersey merchant to impress upon customers the policy of his store. Copy on the flaps reads:

"If you buy an article or a service in my store and find it in any way unsatisfactory, return it, or tell me

about it at once and get your money back. I do not, at any time, want your money unless you are satisfied that you have got your money's worth in exchange. I am not sentimental about it; I know it will pay me to treat you well."

Grand Rapids to Hold Annual Picnic at Morrison Lake

The committee in charge of the Grand Rapids picnic have informed us that arrangements are complete for this event.

Morrison Lake has been chosen as the location, there being a private club there who have extended their privileges to the G. R. boys through the efforts of Lee Bierce, Secretary of the Association of Commerce. Saturday, August 10th, has been selected for the date of the pow-wow and we expect that it will be a big success.

Herman Markowitz Aetna Stove Co. Head Dies

Herman Markowitz, president of Aetna Stove Co., Inc., Philadelphia, which he founded in 1890, died July 1, 1929.

The business will be continued with the following officers:

Nathan Markowitz, President and Secretary; Harry Markowitz, Vice President; Albert Markowitz, Treasurer.

Milwaukee Sheet Metal Men to Picnic at Wolf's Island July 31

The Annual Stag Picnic of the Master Sheet Metal Contractors' Association of Milwaukee will be held at Wolfe's Island, on State Highway No. 57 about nine miles north of the city, on July 31, 1929. Dinner will be served at 12:00 noon.

An enthusiastic entertainment committee headed by Jos. Baur has planned plenty of music, games, drinks, and eats.

Look for the large Wolfe's Island sign on the East side of the road and drive in.

A cordial welcome is extended to all.

IN this series of three articles we have endeavored to examine the proposition of installment selling as it really exists, not alone in one industry, but in general. We have tried to make clear that furnace dealers, as well as all other retail merchants, are confronted with a practice that is an evolution in merchandising. We have endeavored to prove that it is well nigh futile for any single retailer to take an arbitrary stand against a practice which the public wants and has shown every willingness to support.

We have tried to indicate what the wise man does when confronted with such a circumstance—*learning how to use intelligently the tools with which he has to work, taking into consideration conditions as they are.*

THERE are men in the warm air furnace installing business who are making money, strange as that may seem. And they are confronted with the necessity of selling on the installment payment plan. But this fact does not scare them in the least, because they employ common sense methods in this as well as other phases of their business.

The big thing that most warm air furnace men want to know is, how do they do it?

In order to answer that question, numerous warm air furnace men who are doing business successfully in that way were interviewed. Here's what a few of them said:

One man at Elgin, Illinois, who preferred not to have his name mentioned and who operates an up-to-date hardware store in connection with his sheet metal and warm air heating business, gave a practical method of coping with the problem. Elgin is a city of about 36,000 population. Its chief industry is the Elgin National Watch Company.

"The fact that I am often compelled to sell warm air heating plants on the installment payment plan does not worry me," he said. "I learned quite some time ago that there are two classes of credit risks in each community—the good and the bad. There are various shades of these two main classes, but in the main they can all be summed in the two classes.

"Since business at the present time is so constituted that as a deal-

HOW Some Furnace Dealers FINANCE Time Payment Business

er of furnaces, washing machines and many other household necessities I am compelled to make a decision on what terms, other than cash, I am obliged to sell my goods, I make it a part of my business to find out in which classification every customer who asks for any arrangement of the time payment proposition belongs.

"You ask, 'but how can you tell?' To which I reply that we merchants of Elgin have sense enough to realize that we are constantly being solicited to do business with all kinds and types of people. Therefore, we have perfected an organization in our city known as the Elgin Retail Credit Association. The membership of this organization is such that it is representative. It is so constituted that each mem-

can turn in a composite of his monthly or weekly experience with customers. The sum total of this experience is organized in such a manner by the personnel of the credit association that each member has access to the complete ber, without revealing his identity, credit experience of all the merchants of the city.

"Of course everyone in the city buys something somewhere many times during the year. His experience record thus automatically comes to the attention of all of the merchants and he is rated according to whatever his experience shows.

"Now, when a man comes in and says he wants credit or a time payment proposition, before we grant it to him we find out what his rating is. If it so happens that he is not known in the city or has made no previous purchases, we exercise especial care in finding out where he is situated before granting the desired credit. We have no compunction about turning a man down if his experience record shows that he is not a good credit risk. We know that the woods is full of them and that by granting them credit indiscriminately we stand to lose. So we just pass that business up.

"We also know that there are a great many folks who are perfectly good credit risks and who like to do business that way. They have a record of meeting their payments promptly as agreed and are perfectly willing to pay the extra carrying

charge in order to have the time of payment extended. We feel that we would be doing ourselves an injustice if we did not take at least some of this business, and we find that it works out satisfactorily.

"The big thing is to have machinery in operation that will reveal the status of the customer before you have entered into a contract with him. You must find out whether he is honest or dishonest, and that is what our credit association does for its members.

"It is needless to say that the expense of operating this credit bureau is not the cheapest thing in the world, but the membership is fully agreed that it is a necessary adjunct to retail business as it is conducted today and, therefore, whatever it costs must be considered as a part of the expense of doing business. The wise man makes his overhead account for this cost."

Now, on the other hand, some sheet metal men and furnace installers will object to Mr. Juby's way of handling the time payment proposition on the ground that it has been found impossible to get the merchants of their towns or cities to co-operate so closely. Well, there is still another way of doing the same thing, perhaps not quite as effectively or extensively, but suitable for all practical purposes. Just what that other way is I am going to let W. J. Vierck of W. J. Vierck & Son, 330 East State Street, Rockford, Illinois, explain.

This company conducts a hardware store in conjunction with their sheet metal and warm air heating business, and they make it a point to go after the jobs in the better class homes.

When asked how he handled the time payment proposition, Mr. Vierck answered (by the way, Mr. Vierck has been a subscriber to the *ARTISAN* for over thirty years): "The manner in which we dispose of the time payment proposition is

very simple. Whenever we sell a man who asks for extended time for payment, I simply hold the contract up long enough to walk across the street to our bank. At the bank I ask the manager or the president, whoever happens to be about at the time, whether they will accept the person's notes. If the bank says 'no,' that ends it. If the bank says 'yes,' I take the notes there and discount them after the installation is made and the customer then pays

in the first place than to sell merchandise without a profit. That is all that sort of selling would mean. We are in business to make profits, the same as the bank is, so why should we not conduct our business along the same lines as they do their's?"

A. H. Borman, who operates a combination hardware, sheet metal and warm air heating establishment at St. Charles, Illinois, too, is found wasting very little time and energy over the time payment proposition.

"When a request is made to me for extended time on the payment of a contract," said Mr. Borman, "I simply put the proposition squarely to the customer, provided he is a good credit risk to begin with. I call their attention to the fact that they will be required to pay for this additional service. We have a policy of permitting 10 months to pay. That is the outside limit. But in no case do we grant a request for extended time where the credit of the customer is in any way impaired. In granting 10 months' time to pay we stress the desirability to the customer of making as large a down payment as possible. The balance is divided equally over the 10 months."

Examples of this kind could be continued indefinitely. But there would be little object.

It was stated at the outset that the time payment proposition is here. There is nothing that the warm air furnace installer or anyone else can do about that. He must either take it or leave it. But there is nothing to prevent him from satisfying himself that the customer is worthy of the courtesy of extended payments on his purchase before entering into the contract.

Someone will probably raise the objection that repossession in case of default on payments means a loss to the furnace installer because of

(Continued on page 146)

This article completes the series of three on installment selling. There are, no doubt, furnace installers who have ideas of their own on the subject. There are undoubtedly those who have worked out methods of solving the problems coincident with installment that are different from what we have mentioned here. There are undoubtedly those who do not agree with what we have said in these three articles.

We invite comment and constructive criticism. We don't claim to have exhausted all of the possibilities for discussion in the three brief articles we have presented. We have merely given a little salt, so to speak.

Now is your chance to give us your side of the proposition. We have already received a number of letters from readers on the subject. Let us have yours.—THE EDITOR.

the bank. I get my money immediately. Of course, I have to countersign the notes, so that in case the customer fails to meet the obligation I am still responsible for it, but it very, very rarely ever happens that I'm stuck, because I get the bank's judgment on the man's credit before we complete the contract.

"I will admit that some warm air heating jobs get away from us that we could have if we were less strict on our credit, but I figure that we would rather pass up the business

"No Building Too Large to Heat With Warm Air"

Should Be Slogan

By
Platte Overton



Fan Blast
Heating Engineer

TO CAPITALIZE on the position of "heating specialist" in his community, the warm air dealer must develop a "warm air conscious" idea, but he must first develop a "consciousness" of his own. He must evolve a credo somewhat as follows:

"No building is too large for warm air heating. Correct heating and air conditioning may be obtained only with the warm air method.

"By study and research I will make myself a proficient specialist in this industry. In my community they will come to me for advice, and when they consult me they are half sold. I will school myself to talk intelligently and convincingly on this important subject. I am not satisfied to know that the square foot of wall divided by 60 times 9 equals the area of basement pipe for that surface as stated in the Code. I will find out how these coefficients were arrived at. The Standard Code is not the last word in warm air heating and engineering, and with study I may develop it more to my needs and it will help me to work out the many items that it does not cover."

As a warm air heating expert to the public in his community the warm air dealer is not in the same

position as a merchant who reaches on the shelf for a staple article. Every installation he makes is an engineering feat. It requires brains and ingenuity to battle nature. It is known, of course, that a "stove" encased in the basement with the generated heat conducted to the various rooms on the natural air currents through tin pipes will make these rooms warmer than it is outside, but heat is only one item in air conditioning. The dealer must study, investigate, and familiarize himself with the many items in air conditioning. Talk air conditioning, not heating.

The church, theater, school, factory, and garage need this type of system. As pointed out by the writer in previous articles, these buildings can be correctly and efficiently air conditioned only with the fan blast method. The fan makes it positive. Gravity systems must be pampered, nursed, and given the advantage of correct location, deep basements, large ducts, and in the end the various air volumes, temperatures, and velocity depend on temperature differences that vary from day to day and even hour to

hour. With the warm air fan blast system the apparatus may be located in the attic or the building next door, and the correct conditions maintained.

A little study of the basic principles involved will bring enthusiasm and the much needed "consciousness." The warm air dealer may tackle any fan blast job when he has learned to throw the following for a loss: B.t.u., C.F.M., velocity, rate of combustion, mean temperature, relative humidity, static resistance, temperature regulation, ventilation, diffusion, leakage, infiltration, air washing, cooling, properties of air. None of these items are dark and mysterious secrets. They are exact sciences, and have all been figured out for the investigator. Any one with an eighth-grade education can solve them with a little study, and they will make him a better warm air heating man.

It is fortunate or unfortunate—depending on the dealer—that he must be not only a merchandiser but an engineer also. The sooner he studies and comprehends this information, the sooner he will do all the air conditioning in his territory, and, it might be added, in the territory of his nearest competitor who is still thinking about it.



Photo Copyright by Chicago Aerial Survey Co.

CHICAGO is known the world over as the great shopping center of the middle west. To this important metropolis come every year myriads of buyers seeking and finding every description of merchandise.

Until a few years ago, however, these buyers were compelled to hunt more or less over a wide area of the loop to make their purchases. This required much valuable time and materially increased the expense to which they were put.

In the city in recent years, however, there has developed a plan to concentrate certain industries in certain definite areas or in single buildings. As a result of this plan the city now has its great furniture mart, the physicians of the city have their own building, the engineers are housed under one roof, the largest

Lionel Vallas Ventilates New Cook County Jail With 345 20-Inch Copper Ventilators

By GEORGE DUERR

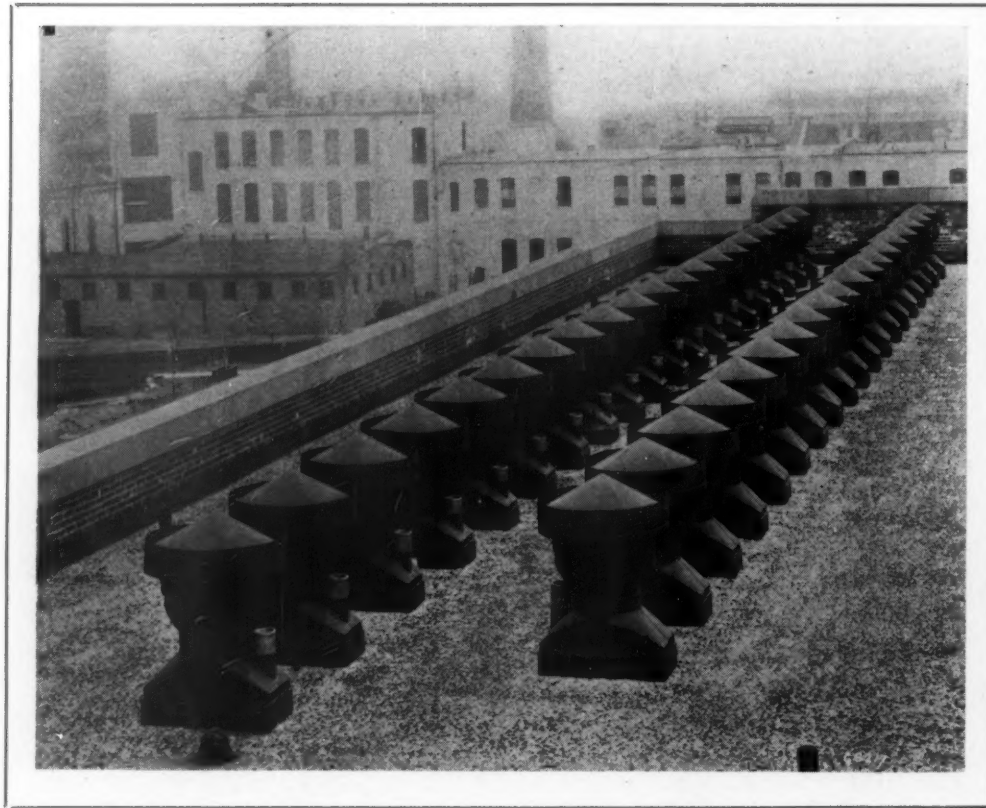
merchandising mart in the world is being erected on the north bank of the Chicago river upon the site which formerly was occupied by the Chicago and Northwestern railway terminal.

But what should interest sheet metal and warm air heating contractors the most is the Builders' Building, located at North La Salle Street and Wacker Drive. In this building there are housed permanent displays of all manner of building materials. The entire second and third

floors of the building are given over to these fixed exhibits. They are free and open to the public every day all day, so that any home owner or person who is contemplating building a home can inspect and select and price not only the materials themselves, but the various appliances which go to make for comfort and convenience in the home. Oil burners, warm air heaters, slate, tile and sheet metal roofing and other sheet metal products. They are also completely indexed in the directory, so that any special company can be found immediately.

In one of the accompanying illustrations is shown the construction of a complete bungalow, giving the prospect an idea of how the materials he selects will look when his home is completed. This home is

Modern Construction



INCREASED DEMAND for PROPER VENTILATION

LEFT—Closeup view of Ventilators on Cell Houses, Cook County Jail, Showing One Wing of our

complete in every respect even to the furnishings. And it contains all modern appliances.

The feature about this house that will interest the sheet metal contractor having a few hours to spare while in the city will be the sheet metal work. The home is completely equipped with copper gutters, downspouts, etc., showing the construction in every particular.

This sheet metal work was done by Lionel Vallas, sheet metal contractor at 2846 West Lake Street, Chicago. Mr. Vallas is the son and successor to the business of William H. Vallas, who has retired from active participation in the business, but whose shop and office has been located on Lake Street, Chicago, for 44 years. In addition to the sheet metal work displayed on the bungalow of the permanent display, Lionel Vallas has a booth on the same floor, where is displayed one of the copper ventilators that is also manufactured by this progressive company.

In addition to doing general sheet metal work of all kinds on the larger buildings in and about Chicago, this company also manufactures and erects the flashing strips and ventilated skylights. They do tile, slate and felt shingle roofing and install metal windows and doors.

As an illustration of some of their recent work, the accompanying illustrations of the ventilators are those which were installed on the new Cook County jail, located at 26th Street and California Avenue, Chicago. And in order to give the sheet metal contractor some idea of how large a job this was, let it be known that there are 345 of these 20 inch copper ventilators installed over the cell rooms of the jail proper and on top of the Cook County court building itself which is just a short distance from the cell houses. There are eight wings to the jail proper, with 39 ventilators on the top of each wing, ensuring the "visitors" plenty of light and air during their incarceration. In all

30,000 pounds of copper was used on the Cook County jail and court building for the ventilators and flashings.

Diversification is the big requirement of the sheet metal contractor today. Those who have seen this need and who have put their businesses in a position to handle all kinds of roofing materials for instance, are the ones who have suffered the least. They are in a position to shift from one material to another without inconvenience or embarrassment, consequently they have experienced a steady growth, while many others have found it next to impossible to carry on.

Sheet metal contractors in the smaller towns and cities can learn a lot from the methods of these men who are eminently successful at their line of work. It is realized that the capital which the small man commands will not permit him to do things on the same scale which the larger business can do, but there is no law against the smaller man

of Penal Institutions

EASES

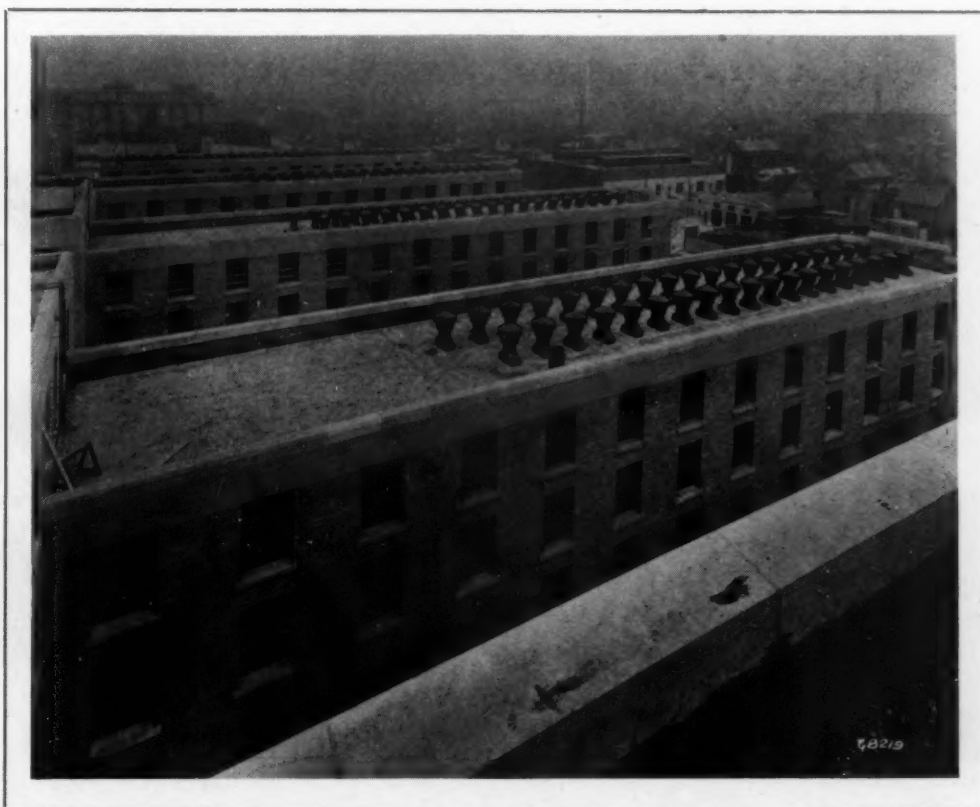
AND

or

PER

ATION

Ventilator Installation
Cook County Jail. Right—
Four Cell Houses.



emulating the larger on whatever scale he can rather than to sit by and permit his business to be swallowed up by the mouth of his own inertia.

It is well known that sheet metal men as a rule are entirely too prone to sit by and allow someone else to come in and take business away from them. As proof of this fact, go into any average-sized town where there are eight or ten men doing sheet metal and warm air furnace installing. What do you find when you talk to these men?

You find one or two furnace men and one or two sheet metal men actually doing a good business, and this in spite of the fact that building activities are slow, perhaps slower than is customary in dull periods. The remainder of these men are sitting placidly by bemoaning the fact that there is no business and doing nothing about it. Ask one of them how business is and he tells you it is terrible. Ask him if he is doing anything to create business

for himself and he immediately counters with some statement about the fact that the business is not there to be had.

From this place you go perhaps three or four blocks away to another contractor's place of business and find that his response to the same question is that business is coming in good, a little more effort required to get it, but coming in in satisfactory volume.

That tells the whole story. The man who wants business goes out and gets it. He recognizes the fact that he is supposed to be a business man and as such is supposed to command ideas on how to create business. He changes his method of attack to suit the needs of the case. When business slows down of its own accord, it is up to him to have sufficient ingenuity to go into fields that he has permitted to lie dormant during his busy season and pick up work which will keep his organization together during the so-called dull period.

There are always certain jobs coming up that the contractor can more or less select his own time on. Of course he can't wait until things are worn out before he tries to get home owners to repair them and then expect to take his own time in doing it. But he can get well enough acquainted with the entire situation in his town to know where a good deal of business is likely to break in a certain period of time. His records, if these are properly kept, will stand him in good stead in this respect.

There are innumerable ways of inducing a certain portion of the people in any community to act a little in advance of the actual need if they are given a plausible reason why it is to their advantage to act now instead of later. That is the business of the business man. The business is there to be had. It remains for the installer and sheet metal man to devise ways and means of getting prospective customers to act when he wants them

Lionel Vallas Secures Business



*by using
modern
methods
of
Displaying
and
Selling*

Operates Sheet Metal
Shop Founded by His
Father Forty-four
Years Ago

to act and this requires effort.

These one or two sheet metal contractors who are getting the business in a small town when things are supposedly dull are the ones who employ greater effort during the slow periods. They expect to have to work harder during those times than when things are booming. Anybody can make money when conditions are such that it is a seller's as distinguished from a buyer's market. But it takes real, earnest effort and proof of giving real service to keep going when things are dull; in fact, when a business is going ahead during dull periods as well as others, that in itself is proof enough that the organization is giving real service.

Men like Lionel Vallas and his brother, W. H. Vallas, who also conducts a roofing and sheet metal business, have

recognized that fact, and they work along those lines. Consequently they are successful and make a satisfactory progress year in and year out.

There isn't a sheet metal or warm air heating business in the country that can't improve itself providing

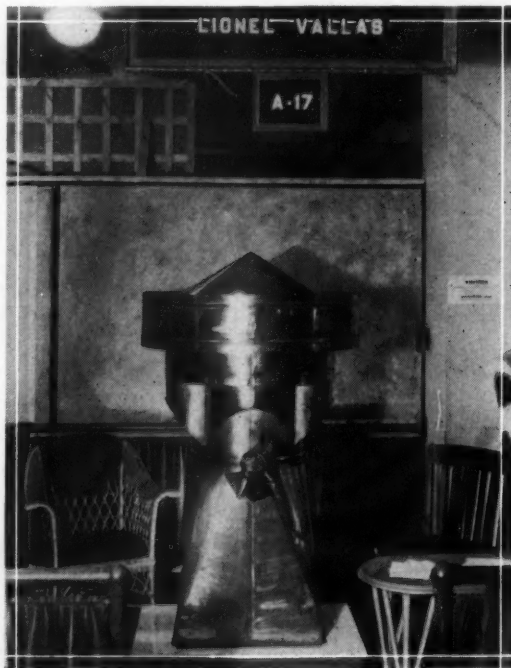
the proprietor gives it a chance.

The man who continually complains that business is terrible and really believes it should get out of the business if he doesn't want to at least try to make his business grow.

The sheet metal contractor who doesn't advertise and doesn't display his work in some manner is not trying to build his business.

Folks nowadays seek out the successful merchant in any line; they like to feel that they are doing business with an up-to-date business man—an established, modern business house that knows its stuff and says so.

The type of homes being built today calls for the finest kind of sheet metal work. The man who builds a home today takes more pride than ever in having the best.



ABOVE—Bungalow as Part of Permanent Exhibit, in Builder's Building, Chicago.

BELOW—Booth of Lionel Vallas at Builder's Building Exhibit.

RANDOM NOTES AND SKETCHES

The street car was crowded, but our hero, J. F. Mattingly, tired after a hard day's work, had succeeded in getting a seat, much to the annoyance of a militant looking Amazon who was forced to stand directly in front of him. She vented her spite by depositing from time to time her entire weight on his foot. Finally, exasperated, the long suffering fellow spoke up. "Lady," quoth he, "would you mind getting off my foot?" Waspishly, the lady retorted: "Why don't you put your foot where it belongs?" Which was the last straw! "Lady," replied our hero, "don't tempt me!"

* * *

A medical examination had disclosed the fact that Sam Johnson had a floating kidney and he was quite worried over it. Meeting the pastor of the African Baptist Church on the street, he asked for help.

"Revern'," he said, "de doctoh done tole me Ah got a floating kidney and Ah wish you would say some prayers fo' me next Sunday."

"How come prayers fo' a floating kidney?" inquired the good pastor. "all mah congregation would bust right out laughing."

"Ah don't see why," insisted Sam. "Last Sunday you done prayed fo' all the loose livers."

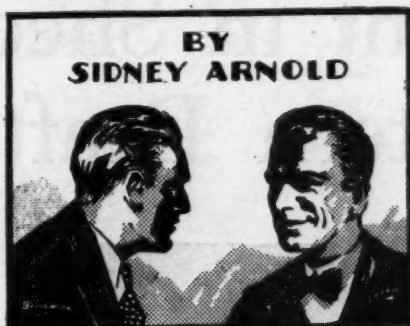
* * *

"How is it you are so familiar with the Smiths' private affairs?"

"We looked after their parrot during the summer holidays."

* * *

Printing offers many pitfalls, as many of our readers may have discovered. Many a writer seeking a beautiful phrase and having completed it to his liking and satisfaction, has all but yielded up the ghost when it appeared in print. For instance, the transposition of a space



makes all the difference in the world in the meaning of words, as the author found out when he penned "the masses" and it appeared in print as "them asses."

* * *

Out of the Mouths of Infants

Caller: "Wouldn't you walk as far as the street car with me, Tommy?"

Age Seven: "I can't."

"Why not?"

"'Cause we're gonna have dinner as soon as you go."

* * *

"Well, said she indignantly, "if you will not marry, I will sue you for breach of promise."

"All right," replied he, calmly. "I'll sue you for slander for suggesting that I asked you to marry me."

* * *

Negro Caller at Hospital: "I came to see how mah fren' Joe Brown was gettin' along."

Nurse: "Why, he's getting along fine; he's convalescing now."

Negro: "Well, I'll just sit down and wait till he's through."

* * *

Harry Rhodes, Grand Rapids, Michigan: "Doctor Phillips said he would put me on my feet again in six weeks."



Lon Shouldice: "And did he?"

Harry: "Oh, yes! I had to sell my car to meet his bill."

* * *

1st First Nighter—I think I'll examine the chorus.

2nd First Nighter—Well I do hope that you don't pull any bloomers.

* * *

Frank: "What do you mean, Iowa girls?"

Ernie: "Oh you know. 'I owe a month's rent,' etc., etc."

* * *

Ralph Blanchard—"Look here, I want to see you about this paragraph announcing my resignation from the Chamber of Commerce."

Editor—"But it's quite true, isn't it?"

Ralph—"Quite. But I should like you to explain why you've printed it under 'Public Improvements.'"

* * *

Dave Farquhar, seeing darky hurrying down street: "Whar you goin', Rastus?"

Rastus: "Ah's lookin' for work."

Dave: "Clar to goodness, ah's glad to heah Mandy's up and aroun' again."

* * *

She: "I wonder if you remember me? Years ago you asked me to marry you."

Absent-minded Professor: "Ah, yes; and did you?"

* * *

Exposure vs. Expense

Mrs. A: I notice, dear, that your new dresses are more in style. I thought your husband objected to short skirts. How did you manage to get his consent?

Mrs. B: Oh, we compromised. He said he'd agree to my wearing them shorter if I'd agree to wear them longer.

Blue Print and Specification Reading

Important in Sheet Metal Pattern Drafting

By
Adolf Kealer

THE SHEET metal worker who has enough ambition to make his chosen vocation a profitable one is the one who will always endeavor to increase his knowledge and experience about his own trade.

Reading of Blueprints Important

One of the essential things is the ability to read and interpret blueprints, specifications, drawings and sketches of all descriptions. To be able to study intelligently along these lines, the student must be familiar at the outset with the "language" that is used in connection with these studies.

Since the science of geometry is very closely connected with all kinds and shapes of articles made of sheet metal, in a study of this kind it is especially desirable to have some knowledge of the fundamentals of geometry as these relate to sheet metal work.

It is the intention of the writer, through a series of articles in *AMERICAN ARTISAN*, to familiarize those interested in the principles of developing patterns of sheet metal work of every description in a workmanlike and efficient manner.

The necessary tools are a



Associate Editor
Pattern Drafting

must first have a clear idea of how the object will look when completed and also how it should be presented on the drawing, so as to enable any other person in the same line of business to understand it.

Steady Practice Necessary

The student will, therefore, have to practice the presentation of different objects on the drawing paper from different viewpoints in order to familiarize the eye with the object in different positions. Most people have little patience thoroughly to learn the projection of one or more views of an object on paper; as a consequence they experience a hardship when reading other people's drawings or sketches, because they have failed to train the eye to see the objects shown.

Fig. 1, Plate I, shows a drawing board, drawing paper, tee square and triangles.

20 by 24-inch drawing board, a 45-degree triangle, a 30 to 60-degree triangle, a 24-inch tee square, a 12-inch triangular rule, a set of drawing instruments, a 4H drawing pencil, an eraser, and thumb tacks.

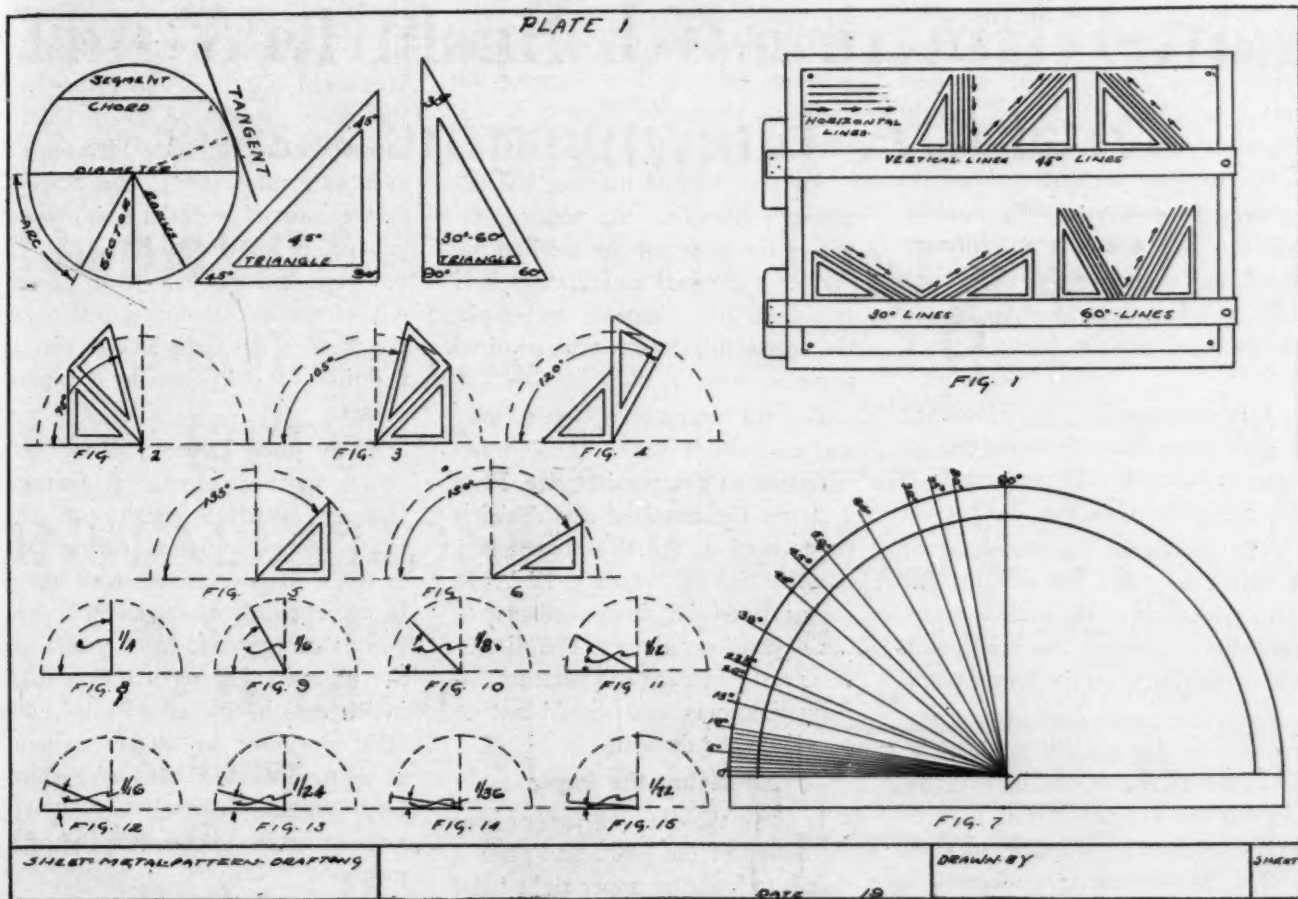
To acquaint the student with the drawing tools, a number of exercises are herewith presented for the purpose of training the hand, as well as the eye, to do the necessary things. Because, before a person can make an intelligent drawing he

This is the first of Mr. Kealer's articles to appear in *American Artisan*. Mr. Kealer will take up the work which Mr. Kothe relinquished because of the press of other duties.

Mr. Kealer will present one article each week in a consecutive series. If there are any questions you would like to ask concerning the articles as they appear, or if you have a special problem in sheet metal drafting, send them to us and we will pass them on to Mr. Kealer for expert consideration.

The tee square is always held at the left side of the board and is used for drawing horizontal lines only. When drawing horizontal lines, the pencil is placed at the upper edge of the tee square and the line is drawn from left to right as shown by the direction of the arrow points.

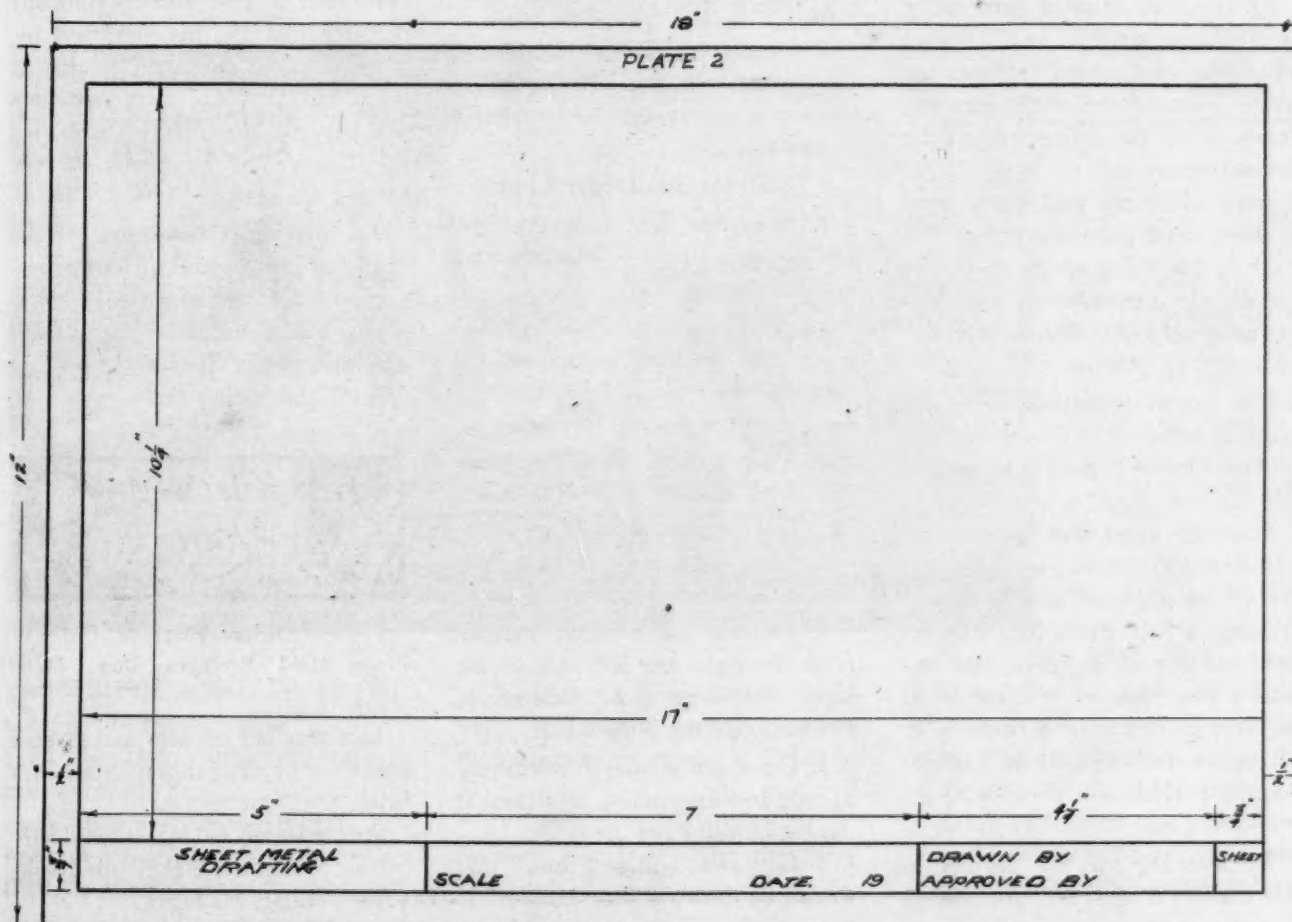
To draw vertical lines,



any one of the triangles are placed against the upper edge of the tee

square and the lines drawn as shown in Fig. 1, the arrow points show-

ing the direction in which the pencil should be moved.



The triangles are also used for drawing angles of various degrees. The angles mostly used in sheet metal work are 90, 45, 60 and 30 degrees. The ordinary triangles are made to this particular shape, to contain these degrees. By combining the two triangles in different positions, angles of 75, 105, 120, 135 and 150 degrees may be obtained as shown on Plate I, Figs. 2 to 6.

When marking or measuring angles, other than those on the ordinary triangle, the protractor is made use of. (See Fig. 7, Plate I.)

The protractor has the shape of a half circle, and the straight line with the notch in the middle represents the diameter of the circle, with the notch placed on the center point.

On the circular part of the protractor the degrees are marked off. In order to enable one to read the degrees on a protractor it may be explained in the following manner.

The measurement of degrees is obtained by drawing straight lines from the center point of a circle to the boundary line of the same circle.

Anyone can draw a protractor by dividing a circle of any diameter into 360 equal parts. From the center point of the circle lines are drawn to all the 360 points in the circumference and we have all the degrees which can possibly be used in sheet metal pattern drafting, but there is one thing which should be particularly remembered, and that is that all the 360 degrees are seldom used in practice.

For practical purposes 180 degrees is sufficient. Therefore one-half of a circle is used only and we call this instrument a protractor.

Since we know that one-half of a circle is 180 degrees, we can measure off an angle of any degree by dividing a half circle into the desired number of degrees. For example, a quarter of a circle is 90 degrees, an eighth of a circle is 45 degrees, a sixth of a circle is 60 degrees, a twelfth of a circle is 30 degrees, etc., etc.

By marking off the degrees in this manner it must be remembered,

however, that the degree is not the arc of the circle, but the distance between the two lines forming the angle as shown in Figs. 8 to 15, Plate I.

An easy way of marking off degrees is by using the pencil compasses for paper or the steel spring divider for metal and draw a half circle of any diameter and make the proper divisions for the required angle.

For the purpose of uniformity and economy it is well to use drawing paper of a convenient size. Plate 2 shows the standard size drawing paper used in the Washburne Apprentice School, which is 12 by 18 inches ruled off in accordance to the dimensions given. The dimensions are given for the students' information only and should not be placed on the drawing.

To Mount the Paper

1. Place the drawing paper about the center of the board and press a thumb tack in the upper right hand corner.
2. Hold the head of the tee square firmly against the left end of the board.
3. Line up the upper edge of the tee square with the lower edge of the paper and fasten the remaining thumb tacks.

To Draw the Border Line

1. Draw fine light lines. (A light line means a thin line which is just visible.)
2. Measure off an equal distance from the top and bottom of the paper, to make it 11 inches between the top and bottom border line.
3. Place tee square on the marks just measured off, and while holding the tee square firmly against the left end of the board, draw the lines across the sheet.
4. Measure off an even distance from the right and left side of the paper, following given dimensions, and complete the border line.
5. Draw guide lines for lettering of title and inscription, as shown at the bottom of Plate 2.
6. Go over those lines that should be drawn a little heavier.

(Concluded from page 137)

the depreciation of the product. It is granted that the installer does run that risk. But it is impossible to see where he runs any greater or even as great a risk in this respect as the automobile dealer does, whose product is known to depreciate 25 per cent the moment it is driven out of the salesroom regardless of the wear it has experienced during the time of possession by the purchaser.

These men quoted above and others who are doing a furnace business in which installment selling is bound to figure, reason that to sell a man a furnace who has a home in which to install it is less risky than and with less chance of the necessity for repossession than in the case of the auto dealer who sells on almost any down payment at all to customers who have absolutely nothing but their weekly salaries or wages to complete the payments.

It might be added that the general experience of furnace installers with finance companies is not favorable. The finance company requires that the installer sign the notes with the customer, so that in the event that the customer does not pay, the installer is liable for the balance of payments to the finance company.

No mention is here made of the financing plans which various manufacturers of furnaces have made available to their dealers. It is felt that the dealer is sufficiently informed concerning these.



Fiber Plugs.

From Mehl Brothers Sheet Metal Works, 807 Union Street, Coffeyville, Kansas.

Can you tell us who makes fiber plugs used as expansion shields for brick, tile, concrete, etc.

Ans.—Refer to M. D. Hubbard Spring Company, 800 South Boulevard, Pontiac, Michigan.

This Well Planned Warm Air Heating Sales Campaign and Attractive

Display

SOLD

FIFTY

INSTALLATIONS

— in Small Town

— in Middle of

Summer

AND —

Without Cost

to Installer



SOME folks in the warm air heating fraternity have come to think that the locating of prospects for warm air heating plants by the house-to-house canvass method has been overdone or has gone stale; that the home owner regards all

such intrusions as objectionable, and that consequently more enemies than friends are made in pursuing that method.

In light of such reasoning, if someone should tell you that fifty live furnace prospects were uncov-

ered in a town of 4,500 population, which is considered to be one of the deadest of the dead towns, in the short space of about 30 days, you wouldn't be long to say, "Well, I'm from Missouri." Then if the same speaker should add, "without cost

LET
JACK STOWELL
MAKE IT HOT FOR YOU

SHREY METAL
VENTILATING
FURNACES

12-14 SOUTH LA SALLE STREET—PHONE 2264
AURORA, ILLINOIS

Mr. Harry S. Van Dorn
334 South Evans Ave.
Evanston, Illinois

Dear Sir:—

The old Post Office is about to take on new life.

Beginning Saturday, July 13, and for several days, there will be shown the things that make for Better Warm Air Heating. (1)

Have you had —

- too much draft across floors?
- dirty walls above registers?
- grates stuck and hard to shake?
- lack of humidity in the house?
- gas and smoke in the house?
- ash dust all over everything?

We can help you solve these problems. Bring them to us at this Display.

It will be attractive!
It will be interesting!!
It will be instructive!!!

CORNER!

Let

Jack Stowell

Make It Hot For You



Letter No. 1

THE First of the
Series Sent Out
Announcing the
Display

THE Display It-
self with Al
Kundee and Mr.
Pepper

to the furnace man," you would surely feel that you were being taken for a sucker.

But nevertheless that is exactly what has been done by Jack Stowell, Aurora furnace dealer and sheet metal contractor. And the town he operated in was Batavia, Illinois, a town which is generally conceded to

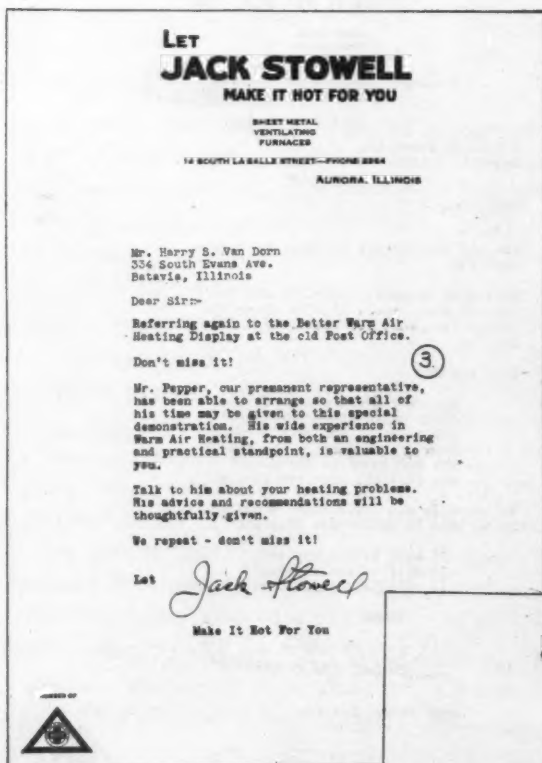
housed his activities.

The old location of the post office was known to all of the inhabitants of the city. And so what does Mr. Stowell do but come in and create a warm air heating display there.

However, this adventure was not entered into in any slipshod manner. For a month or six weeks prior

would send them something very interesting, and in that way was able to compile a list of names that were real furnace prospects.

Immediately thereafter a series of letters were prepared and mailed to the list of names compiled, informing them of the coming warm air heating display and where it could



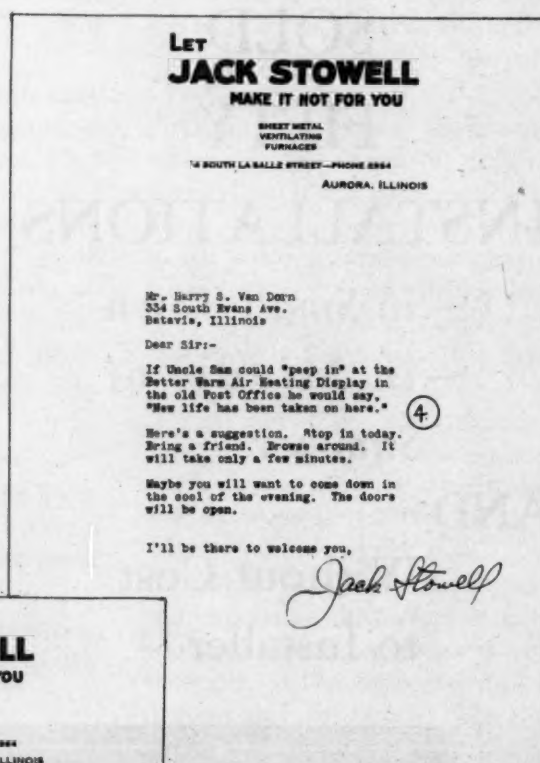
be moving backward rather than forward.

In the days before the merging of companies was so popular, Batavia was considered to be on the upgrade. Its industries did a flourishing wagon and carriage manufacturing activity. But with the coming of the motor car these Batavia industries lost out. Consolidation removed several more companies, and as a result the town had received a severe setback.

Therefore, in such an unpromising field the big question is: How did Jack do it?

In the first place, whether it was "pork barrel" or not, I do not know, but the city of Batavia got a new post office. Uncle Sam's removal to his new quarters created a vacancy in the building which formerly

to the time that the display was announced, Mr. Pepper, Mr. Stowell's salesman, made a personal survey of the situation in the town. He informed the householders on whom he called that in a short while he

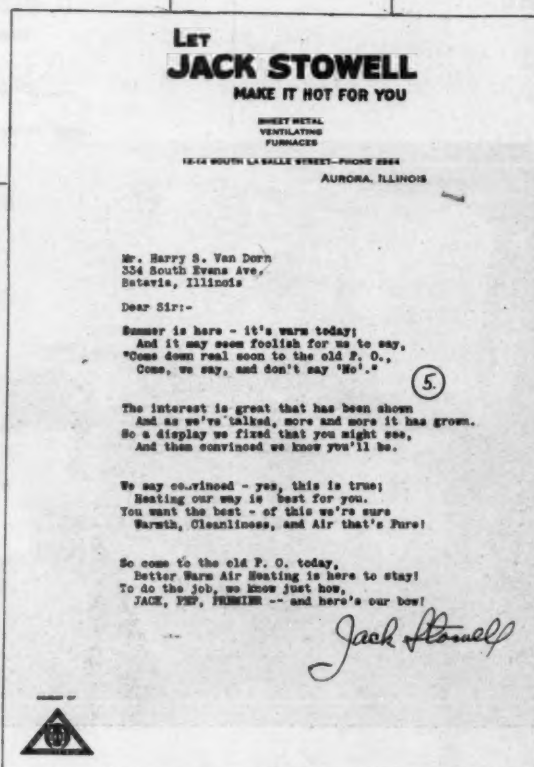


be seen. There were five letters sent out altogether, one of these—the second—coming from the home office of the Premier Warm Air Heater Company at Dowagiac, which told its recipient that a representative from the factory would be on hand to answer any questions about heating that they might want to ask.

The four letters in the series sent out from Aurora on the letterhead of Jack Stowell are shown in one of the accompanying illustrations. They are numbered in consecutive order, No. 2 being

the letter which was sent out by the Premier people.

These letters went out about a week apart, and on the 13th of July the display shown in the accompanying illustration was thrown



open to the public of Batavia.

The results obtained were far beyond even the most enthusiastic expectations of either Mr. Pepper or Mr. Kundee. Mr. Kundee is the factory representative mentioned. And the beautiful part of it all was that the entire undertaking financed itself by means of a furnace cleaning offer that brought in enough work of cleaning and repairs to pay for the rent of the building used to house the display and to pay the salary of the salesman, Mr. Pepper, who made the original survey and was on hand at the display to answer questions of the residents.

A representative of AMERICAN ARTISAN called at the display during its first week of progress and at that time the boys were selling an average of two complete installations a day. The prospects were that this average would be maintained throughout the duration of their stay, and in addition they were able to compile information that would help them to sell a great deal more in the near and distant future.

Al said, "When Jack wrote to me and asked me if I would come down here and assist with this project, I was on the point of discouraging him from going ahead with it, so discouraged was I with the house to house canvass. The wonderful results we have achieved here have most certainly revived my interest in the house-to-house canvass method of getting business. It has given me a new insight into human nature and a conviction that business can be obtained in almost any locality, regardless of how uninviting the prospect looks at the outset, if it is gone about in a systematic manner.

"To drive through the residential sections of this city one would most certainly not get the impression that very many furnaces could be sold here. Looks are often deceiving, however, as was proved in this case.

"This plan of coordinating sales and advertising forces in a manner that Jack has employed here certainly proves the efficacy of organized effort. But so many of us lose sight of the fact that each situation must be sized up according to the

facts in the case and the campaign mapped out along the lines which expediency directs. You will note in viewing this campaign that each little step and each little move had a direct bearing on the whole. Each was so inter-allied with the other that any one would be valueless without the others, but was of equal importance with the others in the whole.


"Failure to observe this fact, to

program could not be worked out in other towns; in fact, I think it is Jack's plan to take in some of the other small towns around here when he has completed this one. I have no doubt but that if the same thought and care are exercised, we can duplicate in other towns what we have done here.


"Of course, we will be somewhat handicapped in other towns by the fact that Uncle Sam perhaps will

SUMMER
1929


DEAR HOMEOWNER:



YOU SWORE YOU WOULD HAVE
IT FIXED AS SOON AS THE FIRE
- WAS OUT.



MAYBE YOU HAD LOTS OF TROUBLE
THE PAST WINTER WITH A DIRTY-
SMOKY FURNACE.



WE HAVE A SPECIAL OFFER FOR
FURNACE CLEANING DURING JUNE
AND JULY.

A CARD IS ENCLOSED FOR YOUR CONVENIENCE
NO STAMP NECESSARY - MAIL IT TODAY.

SINCERELY YOURS
LET
JACK STOWELL
MAKE IT HOT FOR YOU

One of Another Series of Letters Jack Stowell Employed in Getting Furnace Cleaning Business

my mind, is one of the reasons why so many campaigns of a similar nature fall flat. Either their planning is bad or their execution faulty. But this campaign had all the earmarks of thoroughness in every respect, and the results it has produced certainly have been a revelation to me. There is no reason why a similar

not have moved out of headquarters which we can appropriate to our purposes, thus taking advantage of the wonderful advertising tieup that Jack made use of in this instance. But I am certain that all we have to do is to look around with sharp eyes and we will find some way of obtaining a similar tieup."

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

Note: These Prices Are Chicago Warehouse Prices of Metal, to Which Must Be Added Freight to Cities Outside of Chicago.

METALS

FIG IRON

Chicago Fdy.,	
No. 2	\$20 00
Southern Fdy. No. 2	\$1 51
Lake Superior Charcoal	\$7 00
Malleable	\$0 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28 112 sheets	\$22 50
IX	20x28	\$25 50
IXX	20x28 56 sheets	\$14 50
IXXX	20x28	\$15 50
IXXXX	20x28	\$17 00

TERNE PLATES

IC	20x28, 40-lb. 112 sheets	\$26 70
IX	20x28, 40-lb. 112 sheets	\$29 70
IC	20x28, 25-lb. 112 sheets	\$22 30
IX	20x28, 25-lb. 112 sheets	\$25 30
IC	20x28, 20-lb. 112 sheets	\$20 25
IV	20x28, 20-lb. 112 sheets	\$23 00

"ARMCO" INGOT IRON PLATES	
No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	\$4 05
1/4 in.—100 lbs.	\$3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$13 00
Cokes, 90 lbs., base, 20x28	\$12 20
Cokes, 100 lbs., base, 20x28	\$12 40
Cokes, 107 lbs., base, IC	
20x28	\$12 75
Cokes, 135 lbs., base, IX	
20x28	\$14 75
Cokes, 155 lbs., base, 2X,	
56 sheets	\$8 50
Cokes, 175 lbs., base 3X,	
56 sheets	\$9 35
Cokes, 195 lbs., base 4X,	
56 sheets	\$10 35

BLUE ANNEALED SHEETS	
Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	\$4 15

ONE PASS COIL ROLLED BLACK

No. 18-20	per 100 lbs.	\$3 85
No. 22	per 100 lbs.	\$4 00
No. 24	per 100 lbs.	\$4 05
No. 26	per 100 lbs.	\$4 15
No. 27	per 100 lbs.	\$4 20
No. 28	per 100 lbs.	\$4 30
No. 29	per 100 lbs.	\$4 45
No. 30	per 100 lbs.	\$4 55

"ARMCO" GALVANIZED

"Armco" 24	per 100 lbs.	\$6 15
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GALVANIZED

No. 16	per 100 lbs.	\$4 40
No. 18	per 100 lbs.	\$4 55
No. 20	per 100 lbs.	\$4 70
No. 22	per 100 lbs.	\$4 75
No. 24	per 100 lbs.	\$4 90
No. 26	per 100 lbs.	\$5 15
No. 27	per 100 lbs.	\$5 25
No. 28	per 100 lbs.	\$5 40
No. 30	per 100 lbs.	\$5 50

BAR SOLDER

Warranted 50-50	per 100 lbs.	\$31 26
48-52	per 100 lbs.	\$30 51
45-55	per 100 lbs.	\$29 26
Plumbers'	per 100 lbs.	\$27 26

ZINC

In Slabs		\$7 35
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SHEET ZINC

Cask Lots (600 lbs.)		\$11 75
Sheet Lots		\$12 75

BRASS

Sheets, Chicago base	24 1/2 c
Mill base	23 1/2 c
Tubing, brazed, Chicago base	31 1/2 c
Mill base	30 1/2 c
Tubing, seamless, Chicago base	29 1/2 c
Mill base	28 1/2 c
Wire, Chicago base	24 1/2 c
Mill base	23 1/2 c
Rods, Chicago base	22 1/2 c
Mill base	21 1/2 c

COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless, Chicago base	30 1/2 c
Mill base	29 1/2 c
Wire, plain rd., 8 B. & S. Ga.	
and heavier	25 1/2 c

LEAD

American Pig	\$7 62
Bar	\$8 60

TIN

Bar Tin	per 100 lbs.	\$53 00
Pig Tin	per 100 lbs.	\$52 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7 1/2 c per lb.
Mill board 3/32 to 1/2	7 1/2 c per lb.
Corrugated Paper (350 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Furnace Pipe Cleaning	
Bristle with handle each	\$9 75
Fine Cleaning	
Steel only, each	1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$4 45
American Seal, 10-lb. cans, net	\$5 55
American Seal, 25-lb. cans, net	\$2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz.	Price Doz.
4 in.	\$11 00
6 in.	\$11 50
8 in.	\$12 50
10 in.	\$13 50
12 in.	\$14 50
14 in.	\$15 50

CLINKER TONGS

Each	\$1 50
------	--------

CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	3 40

COPPERS—Soldering

Pointed Roofing	
2 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
3 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

Yankee Hot Air	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	3 20
12 inch, doz.	3 50
14 inch, doz.	5 00

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	55

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	3 20
12 inch, doz.	3 50
14 inch, doz.	5 00

RAVES TROUGH

Galv. Crimpedge, crated	75-10%
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%
Galv. Terne Steel	
Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Fortico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2"	45%
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Copper

16 oz., all designs	40%
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Zinc—

All styles	60%
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ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge, Doz.	
5-inch	\$1 15
6-inch	1 25
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue.	
5-inch	\$1 60
6-inch	1 75
7-inch	2 10

WOOD FACES—60% off list.

FENCE

736-6-12 1/2 (100 rods)	\$28 68
1948-6-14 1/2 (100 rods)	43 63

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	
No. 02 Gasoline Torch, 1 qt.	\$5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	\$5 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 30
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	\$5 50
No. 110 Automatic Gas Soldering Furnace	10 50

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	
Tubs (Galv. after made), No. 1	\$5 75
No. 2	\$5 50

GLASS

Single Strength, A, all brackets	
Single Strength, B, all brackets	57%
Double Strength, A, all brackets	
Double Strength, B, all brackets	57%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	35%
Milcor Triplex Wire	10%
Kaves Trough	
Milcor Steel (galv. after forming) from List	50%
Milcor Selflock H. T. Wire, List	10%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover	
Coppered	per gro. \$4 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$3 25

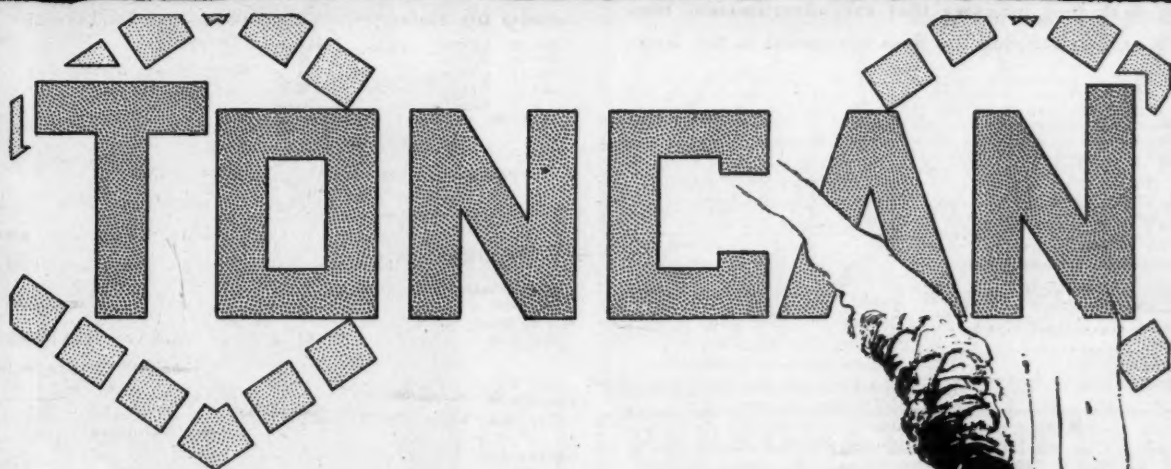
MITRES

Galvanized steel mitres	
28 Ga.	70
26 Ga.	60-20

NAILS

Cut Steel, base	
Wire	
Common	\$3 10
Cement Coated	\$3 14

(Continued on page 152)



TONCAN

Rust-Resisting TONCAN IRON *does away with costly replacements*

TONCAN Copper Mo-lyb-den-um in iron, pure iron, scientifically alloyed with copper and molybdenum will beat rust and corrosion.

Toncan is invaluable for sheet metal work of all kinds. Wherever there is need for protection from exposure—wherever there is danger of corrosion. Practically unaffected by time or abuse, it eliminates costly repairs, constant maintenance.

You will find that Toncan will outlive every other material. And there are so many uses for it. Roofing, ventilating systems, culverts, smoke stacks, metal lath, canopies, etc.

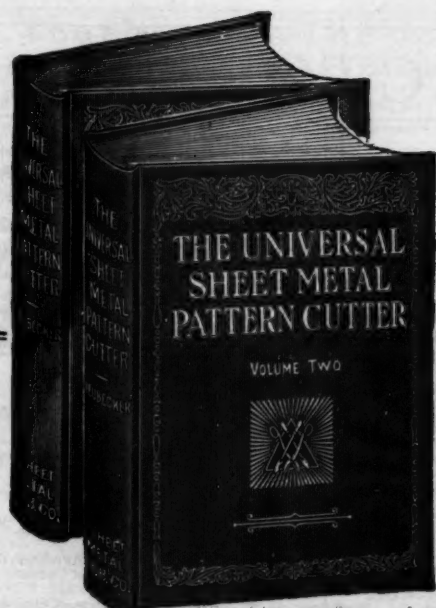
Write for our free booklet explaining Toncan and its many uses.

CENTRAL ALLOY STEEL CORP.

Massillon and Canton, Ohio

World's Largest and Most Highly Specialized Alloy Steel Producers





Over 500 Practical and Shortened Demonstrations and Several Thousand Methods, Illustrated by 1400 Engravings, Are Contained in These Two Books

These famous books are a possession of incalculable value to every man who seeks more profit as a sheet metal worker, whether as draftsman, mechanic, foreman or master. They provide a life's companionship for the thrifty, practical and ambitious; they ease the rough places; lessen drudgery and perplexity; save time, labor and material; insure against inaccuracy and "falling down" in the real emergencies of the daily work.

Containing Everything in Pattern Cutting and Working Sheet Metal

The safe, direct, up-to-date, labor-saving method of developing patterns and performing the incidental operations of sheet metal work of every description will be found in

THE UNIVERSAL SHEET METAL PATTERN CUTTER

Volumes One and Two

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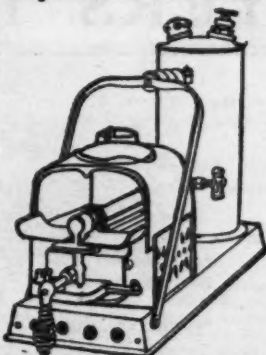
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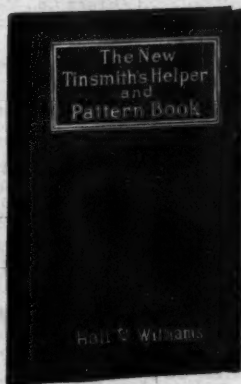
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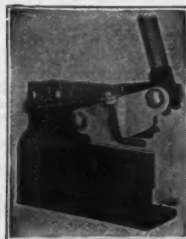
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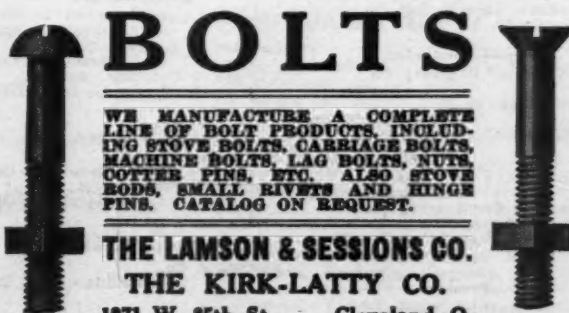
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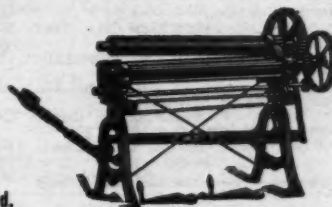
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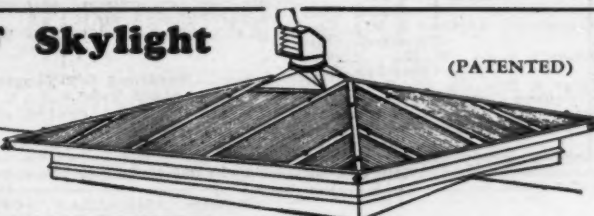
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Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Michigan Fireproof Skylight Co., Benton Harbor, Mich.
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City

Snaps

Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chgo. N. Y., St. L., Det., Cleve.

Solder.

Eller Mfg. Co., Canton, Ohio
Kester Solder Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City

Soldering Furnaces.

Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo. N. Y., St. L., Det., Cleve.
Soldering Supplies, Kester Solder Co., Chicago, Ill.

Specialties—Hardware.

Diener Mfg. Co., G. W., Chicago, Ill.

Stars—Hard Iron Cleaning.

Fanner Mfg. Co., Cleveland, Ohio

Statuary.

Friedley-Voshardt Co., Chicago, Ill.
Gerock Bros. Mfg. Co., St. Louis, Mo.
Miller & Doing, Inc., Brooklyn, N. Y.

Stove Pipe Reducers.

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Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

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Bertsch & Co., Cambridge City, Ind.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
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Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chgo. N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.
Wodack Electric Tool Corp., Chicago, Ill.

Torches.

Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo. N. Y., St. L., Det., Cleve.

Trade Extension.

Sheet Steel Trade Extension Committee, Cleveland, Ohio

Trimnings—Stove.

Fanner Mfg. Co., Cleveland, Ohio

Vacuum Cleaner—Furnace.

Brillion Furnace Co., Brillion, Wis.
Gottschalk Heating Co., Covington, Ky.
National Super Service Co., Toledo, Ohio
Williamson Heater Co., Cincinnati, Ohio

Ventilators.

Aeolus Dickinson Co., Chicago, Ill.
Arex Company, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Folsom Metal Products Co., Chicago, Ill.
Friedley-Voshardt Co., Chicago, Ill.
Kernchen Co., Chicago, Ill.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go. La Crosse, Kan. City
Standard Ventilator Co., Lewisburg, Pa.

Ventilators—Ceiling.

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Yearly subscribers to the **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

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For Sale—General sheet metal, furnace and roofing business. Great chance for a tinner who wants to get ahead. Shop is fully equipped and ideal location on west side, Chicago. Have been in business 34 years, in same location 25 years, and am anxious to retire from active business. Address **W-503, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.**

For Sale—Sheet Metal Shop in busy So. Calif. town. Wants to sell all or half interest to hustling mechanic on account of owner starting hardware store. Full set of machinery, modern plumbing, and plenty of work going on. Established 3 years and paying well. If you mean business write **H. A. Duncan, 1422 No. Ventura Ave., Ventura, Calif. B506.**

For Sale—Fully equipped sheet metal shop. Plenty of work. Only shop in town of 5,000 people. Good farming territory. Will sell reasonable for cash. Address **Bert E. Aldridge, Box 368, Quitman, Ga. E504**

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For Sale—Well equipped sheet metal and plumbing shop in town in eastern Oregon. Good payroll. Address **X-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

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Situation Wanted—By first-class sheet metal worker and furnace installer. 28 years' experience. Can cut my own patterns, work from blue prints, run shop and handle men. Prefer Michigan or Ohio. Wages not less than 90c an hour. Address **"B. J. H.," 502 Oakwood Ave., Owosso, Mich. Z503**

First-class estimator or manager who is practical and a business getter wants connection with a reliable company where there is a future for a man who can produce results. Address **E-503, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

Furnace salesman with nine years' experience, four years as branch manager, seeks connection with reliable company. Best of references. Address **H-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

Wanted—A line of medium price hot blast, also circulator heater with magazine and cast body, also combination 4 for coal and 4 for gas to sell Chicago dealers on commission basis. Address **A-504, AMERICAN ARTISAN, 139 N. Clark St., Chicago.**

Wanted—Steady work by young married man with four years' experience in general sheet metal work in town of 5,000. Can furnish good reference. Address **Arthur Carlson, 536 Bluff St., Marseilles, Ill. Y503**

Situation Wanted—By old-time tinner, thoroughly versed in all lines of inside sheet metal work. Address **W. J. Mack, % Archie Miller, R. F. D. No. 2, St. Charles, Ill. J-504**

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Wanted at Once—A first-class sheet metal worker and all around man. Young man whom we can train preferred. We do not tolerate drinkers. Guarantee work year around. Address **R. L. Spellerberg & Son, 343 W. 8th St., Dubuque, Iowa. Y-504**

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Help Wanted—Foreman for general sheet metal shop in Wisconsin employing about thirty men. Must understand cornice, skylight, ventilating, blowpipe, tin clad door and jobbing work. Also slate and tile roofing. Do not apply if not qualified. State if union or non-union. Give references. Address **W-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

Wanted at Once—Tinner and furnace man. Man under 50 who can do gutter and furnace work and such repair work that comes in small town shop. Steady job to the right party. State wages expected and full information in first letter. Address **Hinckley Hardware Company, Hinckley, Illinois. J-503**

Wanted—Expert furnace man capable of installing and selling high grade line of warm air furnaces in city of 30,000. Location—Ohio valley. For—Well reputed, ample financed lumber and building supply organization. Write freely, giving experience, salary and how soon could come. Address **L-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

Wanted—Reliable tinner and plumber. Good opportunity for a live wire who can do some estimating. A real chance to advance. Steady position the year round. Address **Independent Supply Co., West Frankfort, Ill. D504**

Wanted—Sheet metal workers. Steady, sober and reliable shop hands; must be quick, neat, all around sheet metal mechanics, skilled in all branches of the trade. If qualified address **P. O. Box 123, North Emporia, Virginia. H-503**

Wanted—Young man with experience in sheet metal and warm air heating, in a town of about 5,000 in central western Wisconsin. Good schools and churches here. Address **F-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

Wanted—First-class all around sheet metal worker who can also do warm air heating work. A progressive shop in a live town. Address **M-504, AMERICAN ARTISAN, 139 North Clark St., Chicago, Ill.**

Wanted at Once—A first-class sheet metal worker. State references and wages in first letter. No boozier need apply. Address **George Cochlin Tin Shop, Blooming Prairie, Minn. P503**

Wanted at Once—Combination tinner and plumber. State wages wanted and how soon you can start work. Address **Jones and Erdman, Fox Lake, Wis. G-503**

Wanted at Once—Hardware clerk with some experience. Must be a hustler. Good wages and steady job for the right man. Address **R. B. Fitzgerald Hardware, Madison, S. D. R503**

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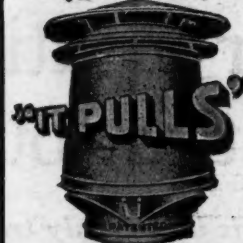
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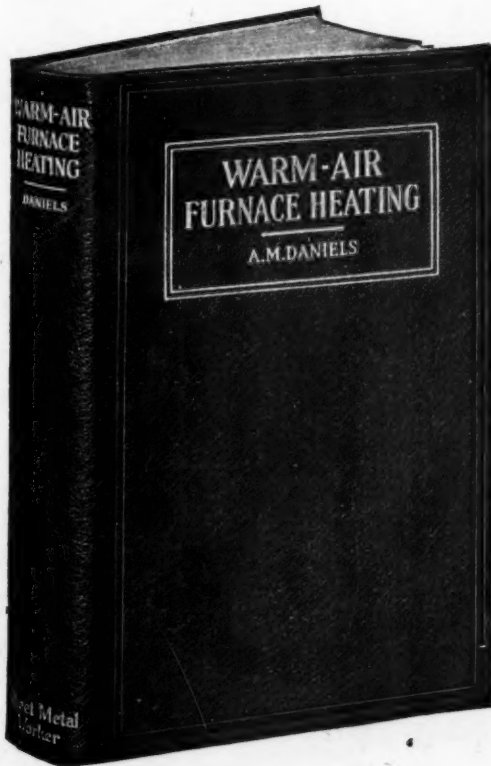
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7. Insulating Coverings and Their Effect Upon Leader and Wall Stack Operation.
8. Casing Diameter vs. Furnace Capacity.
9. Air Supply to Furnace.
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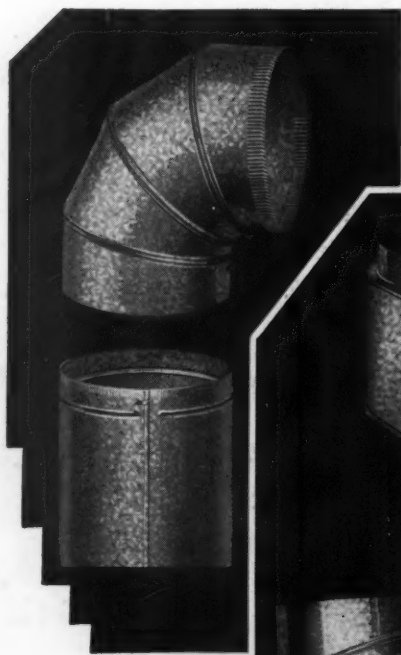
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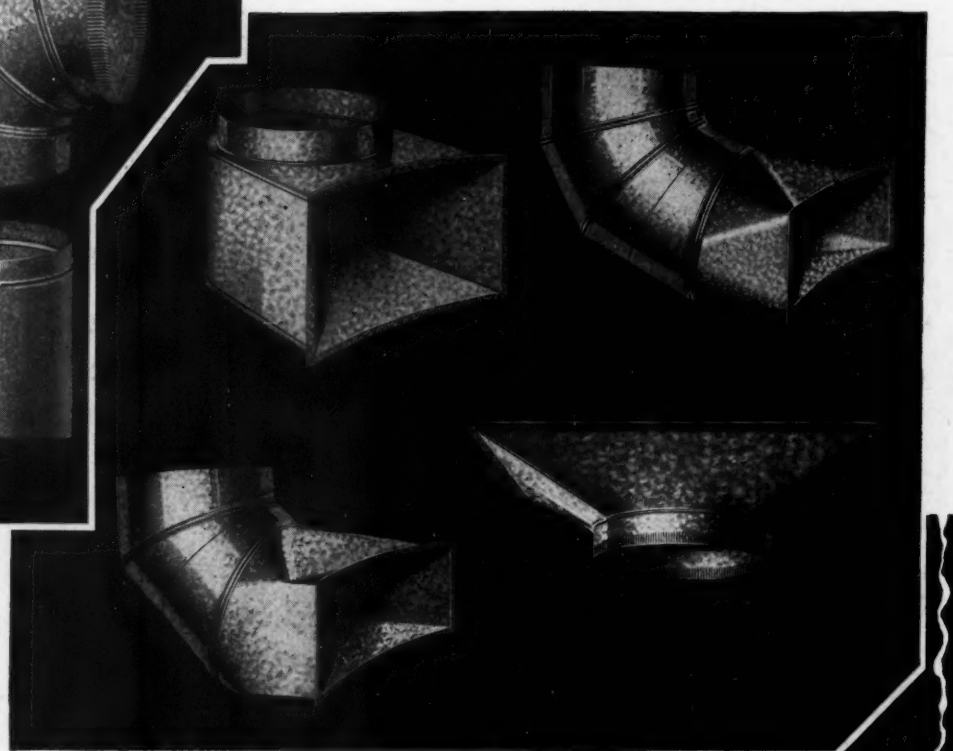
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